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**ADDITIONAL PARTIES LISTED ON
SIGNATURE PAGE**

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
OAKLAND DIVISION**

TECHNOLOGY PROPERTIES LIMITED
LLC and MCM PORTFOLIO LLC,

Plaintiffs,

v.

CANON INC., et al.,

Defendants.

Civil Action No. 14-03640 CW

**DEFENDANTS' BRIEF ON CLAIM
CONSTRUCTION**

DEFENDANTS' BRIEF ON
CLAIM CONSTRUCTION
Civil Action No. 14-03640 CW

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TECHNOLOGY PROPERTIES LIMITED
LLC and MCM PORTFOLIO LLC,
Plaintiffs,
v.
FALCON NORTHWEST COMPUTER
SYSTEMS, INC.,
Defendant.

Civil Action No. 14-03641 CW

DEFENDANTS' BRIEF ON CLAIM
CONSTRUCTION

TECHNOLOGY PROPERTIES LIMITED
LLC and MCM PORTFOLIO LLC,
Plaintiffs,
v.
HEWLETT-PACKARD COMPANY,
Defendant.

Civil Action No. 14-03643 CW

DEFENDANTS' BRIEF ON CLAIM
CONSTRUCTION

TECHNOLOGY PROPERTIES LIMITED
LLC and MCM PORTFOLIO LLC,
Plaintiffs,
v.
NEWEGG INC., et al.,
Defendants.

Civil Action No. 14-03645 CW

DEFENDANTS' BRIEF ON CLAIM
CONSTRUCTION

TECHNOLOGY PROPERTIES LIMITED
LLC and MCM PORTFOLIO LLC,
Plaintiffs,
v.
SEIKO EPSON CORPORATION., et al.,
Defendants.

Civil Action No. 14-03646 CW

DEFENDANTS' BRIEF ON CLAIM
CONSTRUCTION

TECHNOLOGY PROPERTIES LIMITED
LLC and MCM PORTFOLIO LLC,
Plaintiffs,
v.
SHUTTLE INC., et al.,
Defendants.

Civil Action No. 14-03647 CW

DEFENDANTS' BRIEF ON CLAIM
CONSTRUCTION

DEFENDANTS' BRIEF ON
CLAIM CONSTRUCTION
Civil Action No. 14-03640 CW

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2	U.S. Patent No. 7,295,443
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4	Commission Opinion in ITC Inv. No. 337-TA-841, Jan. 9, 2014
5	U.S. Patent No. 7,522,424
6	U.S. Patent No. 7,719,847
7	Order No. 44 in ITC Inv. No. 337-TA-807, Aug. 2, 2102
8	U.S. Patent No. 6,438,638
9	Order No. 23 in ITC Inv. No. 337-TA-841, Oct. 4, 2012
10	Excerpts from the prosecution history of U.S. Patent No. 7,719,847
11	Excerpt from TPL's Post-Hearing Reply Brief, ITC Inv. No. 337-TA-841
12	U.S. Patent No. 5,675,628
13	U.S. Patent No. 5,748,720
14	U.S. Patent No. 5,815,426
15	Global System for Mobile Communications ("GSM") 02.17 V8.0.0 (1999-11) Technical Specification
16	Klaus Vedder & Franz Weikmann, <i>Smart Cards – Requirements, Properties, and Applications, in STATE OF THE ART IN APPLIED CRYPTOGRAPHY</i> 307-331, 308, 322 (1998)
17	Urien, P., <i>Internet Card, a Smart Card as a True Internet Node, in COMPUTER COMMUNICATIONS</i> 23, 1655-66, 1656 (2000)
18	Declaration of Dr. Gary S. Tjaden

I. INTRODUCTION

This case involves a patent owner that is attempting to redefine its patents, long after they were granted, to cover techniques that were available in the prior art before those patents were filed. Specifically, Plaintiffs assert that products that read two well-known memory card formats in a single slot – “MMC” and “SD” – infringe the asserted patents. These card formats, however, predate the earliest of Plaintiffs’ patents and are nearly identical to each other, with the SD card simply being a successor generation to the MMC card. The capability to read MMC and SD cards from a single card slot was known in the prior art – in fact, it is part of the SD standard which predates the asserted patents – and thus is not attributable to the asserted patents as Plaintiffs now claim.

Plaintiffs’ opening brief on claim construction is informative for what it does not show the Court. Plaintiffs completely ignore the prosecution history, where the “mapping” terms were added and used as a basis to distinguish the prior art adapters. And here, the Applicant’s amendments and arguments during prosecution to distinguish the prior art are completely at odds with Plaintiffs’ infringement theory regarding the “mapping” limitations recited in each and every asserted claim in this case. Plaintiffs’ proposed constructions and brief seek to conceal the gaping hole in Plaintiffs’ case – their infringement theory as to “mapping” would read directly on the very prior art reference that forced the inclusion of the “mapping” limitations in the first place and which thereby limited the scope of the asserted claims. Moreover, Plaintiffs recognize that they cannot rely on the specification of the asserted patents to support their arguments. The specification does not disclose or teach “mapping” as that term is claimed and was used in the prosecution to distinguish the prior art. Instead, Plaintiffs are forced to describe the concept of “mapping” by focusing on other memory cards – SmartMedia and Memory Stick – that are not at issue in this case.

The ITC has already correctly determined that sharing a single set of contact pins for only SD and MMC memory cards does not constitute “mapping.” Try as they might, Plaintiffs cannot simply downplay the significance of the ITC’s prior ruling as Defendants “parlay[ing] aspects of the non-infringement finding into a claim construction ruling.” (Pltfs.’ Op. Br. at 3.) Plaintiffs

1 have not shown that the asserted patents explain how “mapping” would be performed between
 2 SD and MMC cards or, for that matter, how the claimed adapter operates differently from the
 3 prior art adapter. Indeed, they cannot. Plaintiffs’ proposed constructions, both for the “mapping”
 4 terms and others, should be rejected because they contradict the intrinsic evidence.

5 **II. LEGAL FRAMEWORK**

6 The goal of claim construction is to determine “how a person of ordinary skill in the art
 7 understands a claim term.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en
 8 banc).

9 **A. Intrinsic Evidence**

10 To determine the meaning of a disputed claim limitation, courts look primarily and first to
 11 the intrinsic evidence of record, examining the claim language, the written description, and the
 12 prosecution history, as the intrinsic evidence is the most significant source of the legally operative
 13 meaning of disputed claim language. *See, e.g., Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d
 14 1363, 1370 (Fed. Cir. 2008) (citing *Phillips*, 415 F.3d at 1312). The analysis starts with an
 15 inspection of how the disputed term is used in the claims. *Phillips*, 415 F.3d at 1314.

16 The claims, of course, do not stand alone, but should be read in view of the specification,
 17 of which they are a part. *Id.* at 1315 (internal citations omitted). The importance of the
 18 specification derives from its statutory role in providing “a written description of the invention . .
 19 . in . . . full, clear, concise, and exact terms” 35 U.S.C. § 112, ¶ 1. In light of this statutory
 20 directive, the “specification necessarily informs the proper construction of the claims.” *Phillips*,
 21 415 F.3d at 1316.

22 “The prosecution history can often inform the meaning of the claim language by
 23 demonstrating how the inventor understood the invention and whether the inventor limited the
 24 invention in the course of prosecution, making the claim scope narrower than it would otherwise
 25 be.” *Phillips*, 415 F.3d at 1317; *see also Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 997
 26 (Fed. Cir. 2006). Both amendments and arguments made during prosecution to distinguish the
 27 claims from the prior art are relevant to claim construction and are highly informative as to the
 28

proper scope of the claims. *Philips*, 415 F.3d at 1317; *see also Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1348-49 (Fed. Cir. 2004). Amendments to the claims or arguments to the examiner, which ascribe certain significance to terms in a claim to distinguish prior art, cannot be recaptured to effectively ignore what was disclaimed during prosecution. *Mangosoft, Inc. v. Oracle Corp.*, 525 F.3d 1327, 1332-33 (Fed. Cir. 2008). “[A]rguments made during prosecution regarding the meaning of a claim term are relevant to the interpretation of that term in every claim of the patent absent a clear indication to the contrary.” *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir. 1995). Likewise, the prosecution histories of related patents can limit the scope of claim terms. *Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1314 (Fed. Cir. 2007). Prosecution history disclaimer “applies with equal force to subsequently issued patents that contain the same claim limitation.” *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 980 (Fed. Cir. 1999).

B. Extrinsic Evidence

When construing claims, a court may consider certain “extrinsic evidence,” including “expert and inventor testimony, dictionaries and learned treatises.” *Phillips*, 415 F.3d at 1317 (internal citations omitted). Expert testimony may be helpful in understanding how one of ordinary skill in the art would interpret the claims. *See id.* However, expert testimony cannot be used to justify deviating from the meaning that one of ordinary skill in the art would discern from the patent itself. *Id.* at 1317-19.

C. Means-Plus-Function Claims

An element may be expressed in means-plus-function language, governed by 35 U.S.C. § 112, ¶ 6. Courts apply a two-step approach to construe a means-plus function limitation. *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1210 (Fed. Cir. 2003). The first step is to identify the function. *Id.* The second step is to identify the corresponding structure in the specification. *Id.*

Failure to clearly link or associate corresponding structure in the specification to the claimed function renders a means-plus-function claim invalid as indefinite. *Cardiac Pacemakers*,

Inc. v. St. Jude Medical, Inc., 296 F.3d 1106, 1114 (Fed. Cir. 2002); *see also Noah Systems, Inc. v. Intuit, Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012). This is true even if the knowledge of one of ordinary skill in the art could theoretically supply sufficient corresponding structure. *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 950-53 (Fed. Cir. 2007); *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1302 (Fed. Cir. 2005) (“The testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification.”)

Where the function of a means-plus-function limitation is performed by a general purpose computer or microprocessor, such as a controller, the Federal Circuit has stated that the structure includes not only the computer itself but also an algorithm by which the computer performs the claimed function. *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999) (“In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm”). When no algorithm is disclosed, such claims are invalid. *Id.*

III. PROPOSED CONSTRUCTIONS

1. “Mapping” / “To Map” (’443 patent, claims 1, 9)

Defendants’ Proposed Construction	Plaintiffs’ Proposed Construction
“varying the assignment of” / “to vary the assignment of” ¹ The mere use of additional signal lines in some circumstances but not others, based upon fixed assignments, does not constitute mapping	“logically assigning” / “to logically assign”

The construction of the “mapping” terms is a case dispositive issue for Defendants. Each independent claim asserted by Plaintiffs includes the term “mapping” or “to map.” The terms first appeared in the asserted claims via amendment during prosecution of the earliest of the three

¹ In order to narrow the disputed issues and crystallize the parties’ dispute, Defendants’ proposed construction for the “mapping” limitations has been slightly revised to remove the word “dynamically” from the proposal addressed in Plaintiffs’ opening claim construction brief.

1 asserted patents (the '443 patent). In order to overcome a prior art rejection – based on U.S.
2 Patent No. 6,402,558 to Hung-Ju et al. (Ex. 1, “the Hung-Ju Reference”) – the Applicant was
3 forced to expressly limit the scope of the claims to an adapter that uses a shared set of contact
4 pins for multiple types of memory cards, and a controller that then “maps” which signal lines are
5 assigned to which contact pins based upon the type of memory card inserted.

6 Plaintiffs’ proposed construction suffers from two significant errors. *First*, Plaintiffs do
7 not even reference the file history. Instead, they ignore the fact that the “mapping” terms were
8 added during prosecution and thus inform (and limit) the proper scope and construction of the
9 claims. *Second*, Plaintiffs’ brief hides the real dispute by discussing “mapping” in the context of
10 memory cards irrelevant to this case (such as SmartMedia and Memory Stick cards).
11 Significantly, the Hung-Ju Reference discloses a single set of shared contact pins for SD and
12 MMC cards. Thus, in view of the Applicant’s statements regarding “mapping” and the disclosure
13 of the Hung-Ju Reference itself, “mapping” cannot encompass sharing a set of common contact
14 pins only for SD and MMC cards. Otherwise, it would not be distinguishable from the Hung-Ju
15 Reference. Yet Plaintiffs’ infringement theory rests solely on the accused products’ use of a
16 shared slot for SD and MMC cards. Accordingly, the proper construction of the “mapping” terms
17 in view of the intrinsic evidence – as proposed by Defendants – is fatal to Plaintiffs’ infringement
18 theory.

19 **a. The claim language supports Defendants’ proposed construction.**

20 The language of the asserted claims supports Defendants’ position that “mapping”
21 requires “varying the assignment of” signal lines to contact pins for different types of memory
22 cards. Each asserted claim requires that mapping occur “based on an identified type of a memory
23 media card” or “depending upon the identification of the type of memory card inserted into said
24 port.”

25 Thus, only after the type of card is identified would a controller “map” signal lines to
26 contact pins – i.e., vary the signal line assigned to each contact pin based upon which type of card
27 is identified. If the assignment of signal lines to contact pins was fixed or pre-connected in
28

advance, the type of card inserted into the slot would be of no consequence, and the limitations requiring mapping to occur “based on an identified type” of card would be superfluous. *Becton, Dickinson and Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249, 1257 (Fed. Cir. 2010); *Cat Tech LLC v. Tubemaster, Inc.*, 528 F.3d 871, 885 (Fed. Cir. 2008).

b. The specification of the ’443 and ’424 patents provides no guidance as to the construction of the term “mapping” as added during prosecution and claimed.

The specification of the ’443 and ’424 patents provides no guidance as to the proper construction of “mapping” signal lines for different types of cards using a shared set of contact pins, as required by the asserted claims. Instead, the specification explains that the disclosed adapter utilizes a different set of contacts pins for each different type of memory card:² “[a]dapter 300 also includes *a number of sets of contact pins*, shown collectively as pin set 315. . . The contact pins electrically couple to corresponding contacts on a memory media card inserted into port 311.” (Ex. 2, ’443 patent, 5:19-24.) Figure. 3 (reproduced below) shows these different sets of contact pins (315) for the different types of cards.

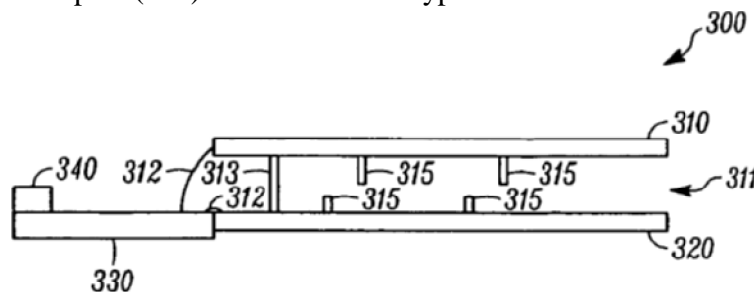


FIG. 3

Rather than having separate connections from each set of contact pins to the host device, the patents describe that the different set of contact pins are connected to a common set of “connector pins” (21 pins in Figure 4, and 18 pins in Figure 5), which in turn are connected to the host device. And as discussed further in Section 5 below, the contact pins are different from the connector pins. The contact pins connect the electrical contacts on a memory card to the adapter;

² The specification treats SD and MMC cards as the same type of card. The patent consistently refers to “SD/MMC” as a type of card, and Figures 4 and 5 use the same nomenclature. See Section 7 (p. 31), *infra*, for Defendants’ proposed construction of “type of memory media card.”

1 the connector pins, in turn, connect the adapter to a host device (such as a computer). And the
 2 interconnects (312) are the connections between the respective contact pins and the connector
 3 pins. Specifically, as described in the specification, interconnects (312) “electrically connect the
 4 standard connector (340) [represented by the leftmost column of ‘connector pins’ in Figures 4 and
 5 5] to contact pins.” (*Id.* at 5:43-44.) The connector pins are then connected to the host
 6 device/controller.

7 The references to “pin mappings” in the asserted patents’ specification do not relate to
 8 “mapping” as that term – which was added during prosecution – is used in the asserted claims.
 9 The “table[s] of pin mappings” shown in Figure 4 and 5 depict the fixed assignments of signal
 10 lines between the common set of connector pins (shown in the left column titled “pins”) and the
 11 different sets of contact pins for the different types of cards (shown in the other columns on a
 12 card-by-card basis). For instance, in the embodiment depicted in Figure 4, for a SmartMedia card,
 13 a data signal (“D1”) would be sent along the prewired interconnect (312) between connector pin 2
 14 and the SmartMedia contact pins; meanwhile, for an MMC/SD card, a control signal (write
 15 protect or “WP”) would be sent along the prewired interconnect (312) between connector pin 2
 16 and the MMC/SD contact pins.

17 As originally drafted, the claims recited a “controller chip” that was “operable to
 18 differentiate a pin configuration based on an inserted memory media card.”³ In other words, the
 19 adapter disclosed and described in the specification determined which one of the different sets of
 20 contact pins was in use (i.e., what type of card was inserted), and then signals were sent along the
 21 prewired connections between that set of active contact pins and the set of connector pins
 22 according to the tables in Figures 4 and 5.

23 The Applicant, however, was forced to change course during patent prosecution. As
 24 discussed in further detail below, the Examiner rejected the claims as originally presented (with
 25

26 ³ Application claim 1 (patented as claim 1) recited: “a controller chip operable to differentiate a
 27 pin configuration based on an inserted type of memory media card,” while application claim 12
 28 (patented as claim 9) recited: “a controller integrated into the multi-memory media adapter for
 differentiating a pin configuration for each of the plurality of memory media.”

the “differentiate” language) based upon the Hung-Ju Reference (Ex. 1), which likewise taught an adapter having different sets of contact pins for different types of memory cards. Accordingly, when confronted with the Hung-Ju Reference, the Applicant added the “mapping” limitation to the claims and distinguished the claims from the Hung-Ju Reference. The Applicant asserted that unlike the Hung-Ju Reference, the asserted claims are directed to an adapter with a *shared set of contact pins* for different types of cards – not different sets of contact pins for the different types of cards – and a controller that “maps” the assignments of signal lines to the shared contact pins depending upon the type of card inserted, rather than the pre-assigned connections disclosed in the Hung-Ju Reference (and disclosed in the specification of the asserted patents). (Ex. 3, ’443 patent excerpted file history at TPL002547, TPL002549, TPL002554-TPL002555.) Thus, the “pin mappings” reflected in Figures 4 and 5 – which depict prewired connections of connector pins and *different sets* of contact pins – are irrelevant to the claimed mapping, which requires mapping of signal lines between a set of connector pins and a *shared set* of contact pins.

c. The file history of the ’443 patent mandates Defendants’ proposed construction.

The arguments and amendments made by the Applicant during prosecution do what the specification does not – provide some meaning of “mapping” as claimed by the Applicant. The phrase “to map at least a subset of the [at least one] set of contact pins to a set of signal lines or power lines, based [on] an identified type of [a/the] memory card” was specifically added to the claims that eventually issued as asserted claims 1 and 9 to overcome a prior art rejection during prosecution of the ’443 patent (Ex. 3, ’443 patent excerpted file history at TPL002547, TPL002549):

a controller chip ~~operable to map at least a subset of the at least one set of contact pins to a set of signal lines or power lines, based on an identified type of a memory media card.~~
~~differentiate a pin configuration based on an inserted memory media card.~~

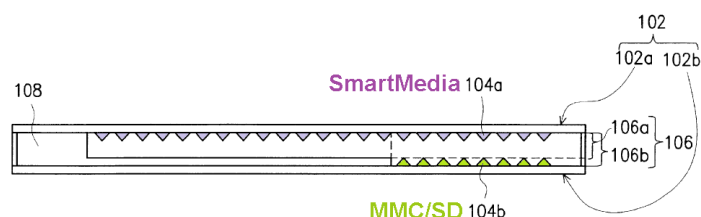
In amending the claims, the Applicant explicitly distinguished the Hung-Ju Reference and explained that the purported invention of the asserted claims consists of a memory card adapter in which multiple types of cards use the same set of contact pins, and a controller “maps” which

1 signal lines are assigned to which pin only after a memory card is inserted and its type is
 2 identified. The Applicant stated as follows:

3 As shown, Hung-Ju discusses a memory card adaptor suitable for
 4 different types of memory cards by physically “positioning contact
 5 pins and entrance slots in various locations”. Thus, Hung-Ju
 6 suggests using different sets of contact pins for different types of
 7 memory cards. By physically placing memory cards in different
 8 positions in the adaptor, different contact pins are in contact with
 9 the memory cards. Thus, Hung-Ju teaches away from the claim
 limitation using a controller chip to “map at least a subset of the
 “at least one set of contact pins to a set of signal lines or power
 “lines” where one set of pins is mapped to different signals
 depending on the type of identified memory card, as recited in
 Applicant’s independent claims 1 and 12 [patented claims 1 and 9].

10 (*Id.* at TPL002554-TPL002555 (emphasis in original).)

11 Notably, the Applicant’s statement to the Patent Office that the Hung-Ju Reference
 12 “suggests using different sets of contact pins for different types of memory cards” is not entirely
 13 accurate. The Hung-Ju Reference discloses three sets of contact pins – 104a, 116, and 104b. The
 14 22 contact pins identified as 104a in the Hung-Ju adapter make electrical contact with the contact
 15 points of a SmartMedia card. (*See, e.g.*, Ex. 1, the Hung-Ju Reference, 3:37-41.) The 50 contact
 16 pins identified as 116 in the Hung-Ju adapter make electrical contact with the contact points of a
 17 CompactFlash card. (*See, e.g., id.* at 4:9-13.) As disclosed in the Hung-Ju Reference, however,
 18 “[a] multi-media card [MMC] or a digital card [SD] must be inserted into the memory card
 19 adapter 100 with the input/output contact points of the card facing down so that proper electrical
 20 contacts with the contact pins 104b can be made.” (*Id.* at 4:22-26.) Thus, the 8 contact pins
 21 identified as 104b in the Hung-Ju adapter are a shared set of contact pins that make electrical
 22 contact with the contact points of both SD and MMC cards. (*See, e.g., id.* at 3:31-36.) Figure 1
 23 from the Hung-Ju reference showing sets of contact pins 104a and 104b is reproduced below:



28 Hung-Ju FIG. 1 (annotated)

d. One skilled in the art would understand that “mapping” does not include fixed assignments.

Accordingly, the Applicant’s amendments and statements during the prosecution of the ’443 patent to overcome the Hung-Ju Reference,⁴ coupled with the disclosure of the Hung-Ju Reference itself, inform the skilled artisan at the time of the alleged invention claimed in the asserted patents as to the meaning of the “mapping” limitations. In view of what the Applicant told the Patent Office, one of skill in the art at the time would have understood “mapping” or “to map” to mean varying which signal line is assigned to which contact pin based upon which of multiple types of memory cards is inserted. And because the Hung-Ju Reference discloses a shared set of contact pins for MMC and SD cards, one of skill in the art at the time would have understood that “mapping” or “to map” cannot include sharing a set of contact pins between only SD and MMC cards. Thus, one of skill in the art at the time would have understood that the use of fixed assignments where certain signal lines are used only in some circumstances (e.g., when an SD card is inserted) but not others (e.g., when an MMC card is inserted) could not constitute “mapping” as claimed in the asserted patents.

e. Plaintiffs’ proposed construction ignores the file history and attempts to claim subject matter already covered by the prior art.

Unlike Defendants’ proposed construction, Plaintiffs’ proposal deviates from the intrinsic evidence and improperly attempts to claim subject matter that the Applicant already recognized was in the prior art. Under Plaintiffs’ proposed construction, the system described in the Hung-Ju Reference would “infringe” the asserted claims. Equating “to map” with simply “to logically assign” as Plaintiffs suggest – with no requirement that the assignment must *vary* – would eviscerate the critical and necessary distinctions that the Applicant made between the asserted

⁴ Both the ’424 and ’847 patents claim priority to the ’443 patent. The statements and arguments made by the Applicant to the Patent Office during prosecution of the ’443 patent were “not limited to the invention disclosed in the [’443] patent, but [were] a representation of its own understanding of the inventions disclosed in [the ’424 and ’847] patents.” *Microsoft Corp. v. Multi-Tech Sys.*, 357 F.3d 1340, 1350 (Fed. Cir. 2004) (“Any statement of the patentee in the prosecution of a related application as to the scope of the invention would be relevant to claim construction, and the relevance of the statement made in this instance is enhanced by the fact that it was made in an official proceeding in which the patentee had every incentive to exercise care in characterizing the scope of its invention.”) Accordingly, the Applicant’s statements relating to “mapping” during the prosecution of the ’443 patent apply equally to the ’424 and ’847 patents.

1 claims and the Hung-Ju Reference.

2 Conspicuously absent from Plaintiffs' opening brief is any acknowledgement of – let
3 alone explanation regarding – the file history, the Hung-Ju Reference, or the Applicant's
4 amendment and statements distinguishing the purported invention from that reference. And for
5 good reason – Plaintiffs cannot reconcile their proposed construction with the Applicant's
6 statements to the Patent Office. Assigning contact pins to power lines or signal lines, as Plaintiffs
7 propose, can be done in advance of any card being inserted and would not require mapping based
8 upon the type of card inserted. Indeed, this is exactly what the Hung-Ju Reference discloses. The
9 Applicant told the Patent Office that the claimed "mapping" requires more – specifically, that
10 "mapping" requires varying the assignment of signal line to shared contact pin based upon the
11 type of card inserted into the slot. The Applicant's amendments and statements are binding on
12 Plaintiffs and limit the scope of the "mapping" limitations.

13 Likewise absent from Plaintiffs' opening brief is any reference to mapping in the context
14 of SD and MMC cards. Plaintiffs' opening brief repeatedly refers to "mapping" by explaining the
15 differences in signal line to contact pin assignments between SmartMedia and Memory Stick
16 cards. (*See, e.g.*, Pltfs.' Op. Br. at 2, 6.) Plaintiffs, however, do not discuss mapping at all in the
17 context of SD and MMC cards, despite the fact that is the entire basis for their infringement case.
18 As discussed above, the Hung-Ju Reference discloses a single set of contact pins 104b (*see, e.g.*,
19 Ex. 1, the Hung-Ju Reference, 4:22-26) for both the SD and MMC cards. Thus, the "mapping"
20 limitation that the Applicant added to the claims and used to distinguish the Hung-Ju Reference
21 cannot now be interpreted to include the use of a shared set of contact pins for only SD and MMC
22 cards. Like the Hung-Ju Reference, the "pin mapping" tables in the specification of the asserted
23 patents (and reproduced in Plaintiffs' opening brief) do not disclose any differences in pin
24 assignments for SD and MMC cards. (*See, e.g.*, Pltfs.' Op. Br. at 2, Figure 5). Rather, SD and
25 MMC cards are treated the same in the asserted patents as they are in the Hung-Ju Reference,
26 with the same signal lines assigned to the same contact pins for both cards. (*Id.*) Recognizing
27 that "mapping" cannot properly include sharing pins between only an SD and an MMC card in
28

view of the intrinsic evidence, Plaintiffs try to obfuscate the issue in their brief by only addressing “mapping” in the context of other cards, such as SmartMedia and Memory Stick. (*Id.* at 2, 6.)

Yet Plaintiffs’ infringement theory in this case rests entirely on the use of SD and MMC cards with a shared set of pins in the same slot. The Federal Circuit has repeatedly held that a court may consider the accused products to provide context for purposes of claim construction. *See, e.g., Every Penny Counts, Inc. v. Am. Express Co.*, 563 F.3d 1378, 1383 (Fed. Cir. 2009). The only memory cards that use the same slot in Defendants’ accused products are SD and MMC cards, and the assignments of signal lines to contact pins are not only predetermined in advance of card insertion, but they are also the same for SD and MMC cards. Plaintiffs’ infringement theory is that these products perform “mapping” because three of the preassigned data lines are used for SD cards (which utilize parallel data transfer using 4 data lines), while only one data line is used for MMC cards (which implement serial data transfer using one data line). But that is precisely what the Hung-Ju Reference discloses and thus cannot constitute the claimed “mapping.” As the ITC has already correctly ruled, “no mapping is required” to communicate with SD and MMC cards, and “the mere use of additional signal lines in some circumstances but not others, based upon fixed assignments, does not constitute mapping.” (Ex. 4, ITC Comm’n Op., Inv. No. 337-TA-841 at 21.)

The duplicity in the Applicant’s statement to the Patent Office during prosecution on one hand, and Plaintiffs’ infringement theory in this case on the other, underscores the import of properly construing the “mapping” terms in this litigation. Defendants’ proposal properly considers the file history and the Applicant’s amendments and statements to the Patent Office regarding the “mapping” limitations, and therefore should be adopted.

2. “Means for mapping” (’424 patent, claims 25, 28; ’847 patent, claim 1)

Defendants’ Proposed Construction	Plaintiffs’ Proposed Construction
Governed by 35 U.S.C. § 112, ¶ 6 Structure: “a controller”	(1) “Means for mapping . . .” in ’424 patent, claims 25 and 28: Governed by 35 U.S.C. § 112, ¶ 6 Structure: “a controller”

Function: “varying the assignment of power, ground or data signals between said [interconnection pins / interconnection means / signal lines] and said one or more contact pins based on the type of memory card identified”

Note: This term is indefinite because no algorithm is disclosed

Function: “logically assigning power, ground and/or data signals between said interconnection [pins/means] and said one or more contact pins depending upon the identification of the type of memory card inserted into said port”

(2) “Means for mapping . . .” in ’847 patent, claim 1

Not governed by 35 U.S.C. § 112, ¶ 6

“means for logically assigning power, ground or data signals between said signal lines and said contact pins depending upon the identification of the type of memory card inserted into said port . . . wherein the means for logically assigning comprises a controller”

Contrary to Plaintiffs’ assertion, each of the “means for mapping” limitations recited in the asserted claims is governed by 35 U.S.C. § 112, ¶ 6. The construction of a means-plus-function limitation involves a two-step process: (i) construing the function, and (ii) identifying the corresponding structure in the specification that performs the function. *In re Aoyama*, 656 F.3d 1293, 1296-97 (Fed. Cir. 2011). Here, the parties dispute both steps.

As Defendants properly recognize, the function must come from the claim itself as informed by the intrinsic evidence, and the term “mapping” within the recited function should be construed as “varying the assignment of” for the reasons described above in Section 1 (p. 4). Additionally, and regardless of the construction of the function, these means-plus-function terms lack any corresponding structure because no algorithm is disclosed in the specification to accomplish the “mapping” function. Plaintiffs’ reliance on Figures in the specification is misplaced because, at best, the Figures depict only the prewired connections of multiple sets of contact pins to connector pins, not an algorithm to accomplish the claimed mapping function. Accordingly, these terms are indefinite under 35 U.S.C. § 112, ¶ 2 pursuant to *Aristocrat Technologies Australia Pty Ltd. v. International Game Technology*, 521 F.3d 1328, 1333 (Fed. Cir. 2008), and its progeny. *See also Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1364-65 (Fed. Cir. 2012).

1 **a. The recited “mapping” function in the ’424 and ’847 patents must be**
 2 **construed consistent with intrinsic evidence.**

3 Defendants’ proposal for the recited function tracks the language of the claim itself and
 4 clarifies that the term “mapping” in that function must be construed to mean “varying the
 5 assignment of.” As explained above in Section 1, the term “mapping” must be construed in view
 6 of the Applicant’s amendment during prosecution of the ’443 patent adding the “mapping”
 7 limitation and further statements to the Patent Office distinguishing the “mapping” limitation
 8 from the Hung-Ju Reference.

9 Plaintiffs’ proposal, however, wholly ignores the limiting statements made during the
 10 prosecution of the ’443 patent, and in so doing attempts to change “mapping” to “logically
 11 assigning.” As discussed above, however, the Applicant distinguished the Hung-Ju Reference
 12 from the asserted claims on the grounds that “mapping” is only required when multiple cards
 13 utilize a shared set of pins and the assignment of signal lines to pins varies based on the type of
 14 card inserted. Simply “assigning” signal lines to pins – with no requirement that those
 15 assignments must vary based on the type of card – can be done in advance and, in fact, is
 16 expressly taught by the prior art Hung-Ju Reference, in which SD and MMC cards share the same
 17 contacts.

18 **b. The corresponding structure requires a controller programmed in**
 19 **accordance with a disclosed algorithm.**

20 The only structure disclosed in the ’424 and ’847 patents that could possibly perform the
 21 claimed mapping function is a controller. Indeed, the parties agree that the structure
 22 corresponding to the recited “mapping” means must include a controller, but disagree as to
 23 whether the controller alone is sufficient structure.

24 The Federal Circuit has consistently held that where the function of a means-plus-function
 25 limitation is performed by a general purpose computer or microprocessor, such as a controller, the
 26 structure must include not only the computer itself but also the algorithm disclosed in the
 27 specification by which the computer performs the claimed function. *Aristocrat*, 521 F.3d at 1333
 28 (“in a means-plus-function claim ‘in which the disclosed structure is a computer, or
 microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general

1 purpose computer, but rather the special purpose computer programmed to perform the disclosed
 2 algorithm.”); *see also* *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012); *In re*
 3 *Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1314-15 (Fed. Cir. 2011). Here,
 4 the only disclosed structure having the capability to perform the mapping function is a general
 5 purpose controller, i.e., a microprocessor. That controller, in turn, must be programmed
 6 according to a particular algorithm in order to perform mapping depending upon the identification
 7 of the type of memory card inserted. (*See* Ex. 18, Declaration of Dr. Gary S. Tjaden (hereinafter
 8 “Tjaden Decl.”), ¶ 20.)

9
 10 **c. The failure to disclose an algorithm by which the controller performs the
 mapping function renders the “means for mapping . . .” terms indefinite.**

11 As noted above, *Aristocrat* and its progeny require the disclosure of an algorithm by
 12 which a general purpose computer performs the recited function. Those cases similarly hold that
 13 the failure to disclose such an algorithm renders the means-plus-function limitation indefinite and
 14 the claim invalid. *In re Katz*, 639 F.3d at 1315; *Aristocrat*, 521 F.3d at 1333-35. In *Aristocrat*, for
 15 example, the patent-in-suit related to an electronic slot machine, and the only corresponding
 16 structure disclosed for the disputed means-plus-function term “control means” was a ““standard
 17 microprocessor base[d] gaming machine.”” *Aristocrat*, 521 F.3d at 1334. The Federal Circuit
 18 rejected the patentee’s arguments that the specification disclosed an algorithm by which a general
 19 purpose microprocessor performed the function, finding that the portions of the specification and
 20 claims to which the patentee cited – including Figures and Tables from the specification – only
 21 described the outcome or results of the claimed function. *Id.* at 1334-35. *Aristocrat* noted “[t]hat
 22 is not enough to transform the disclosure of a general-purpose microprocessor into the disclosure
 23 of sufficient structure to satisfy section 112 paragraph 6.” *Id.* at 1335.

24 Because the ’424 and ’847 patent specifications – like the specification of the patent-in-
 25 suit in *Aristocrat* – do not disclose an algorithm by which the controller performs the mapping
 26 function, these claim terms are invalid as indefinite under 35 U.S.C. § 112, ¶ 2. Figures 4 and 5
 27 of the ’424 and ’847 patents and the portions of the specification discussing those Figures –
 28 which are listed by TPL as “corresponding structure” for the “means for mapping . . .” limitations

– do not save the claims, because the Figures themselves are not structure and do not disclose an algorithm. Instead, like the Figures and tables upon which the patentee in *Aristocrat* unsuccessfully relied, “they are simply examples of the results...of an unspecified algorithm.” 521 F.3d at 1335 (emphasis added). And the “results” depicted do not relate to the function as claimed. Figures 4 and 5 pictorially represent nothing more than static, one-to-one prewired connections of signal lines between multiple sets of contact pins and a discrete set of connector pins; accordingly, they do not constitute an algorithm that describes how to perform the mapping function from a common set of contact pins. (See Tjaden Decl., ¶¶ 23-25.) Accordingly, the claims are invalid as indefinite.

d. Claims 25, 26, 28, and 29 of the ’424 patent and claim 1 of the ’847 patent are all governed by 35 U.S.C. § 112, ¶ 6.

Plaintiffs’ contention that claims 26 and 29 of the ’424 patent and claim 1 of the ’847 patent are not means elements because they refer to a controller is wrong. Reciting a generic controller is insufficient to remove these limitations from the ambit of § 112, ¶ 6.

As Plaintiffs recognize in their opening brief, claim terms that use the phrase “means for” are presumptively governed by 35 U.S.C. § 112, ¶ 6. *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007). This presumption is overcome only when the claim in question also recites sufficient structure to perform the recited function. *Id.* As stated in the cases that Plaintiffs themselves cite, the recited structure must be *sufficient* to perform the function recited in the claim. (Pltfs.’ Op. Br. at 10.) Here, as discussed above, Plaintiffs’ expert declaration demonstrates that the patents’ description of a “controller” defines no structure at all.⁵ Accordingly, all claims reciting the “means for mapping” limitation are governed by 35 U.S.C. § 112, ¶ 6.

e. Plaintiffs’ reliance on Mr. Buscaino’s opinions regarding the alleged disclosure of structure is misplaced.

Plaintiffs cannot properly rely on the August 2, 2012 declaration of Dale Buscaino to

⁵ Plaintiffs’ reference to claims 1 and 9 of the ’443 patent is irrelevant to this analysis, as those two claims do not include means-plus-function limitations governed by 35 U.S.C. § 112, ¶ 6.

1 support its construction for several reasons. **First**, Mr. Buscaino’s analysis improperly omits any
 2 discussion of the most relevant piece of intrinsic evidence: the prosecution history. Mr. Buscaino
 3 does not even identify the prosecution history for the ’443 patent or the Hung-Ju Reference
 4 among the materials he considered in reaching his opinions, let alone address them. (Buscaino
 5 Aug. 2, 2012 Decl., ¶¶ 12, 19.) Mr. Buscaino’s failure to consider and confront this evidence
 6 undermines his entire analysis of the “mapping” limitations.

7 **Second**, Mr. Buscaino’s assertion that the controller need not be programmed by an
 8 algorithm is contrary to law and inconsistent with his own prior testimony. The *quid pro quo* for
 9 drafting claims in means-plus-function format is the disclosure of structure that is clearly linked
 10 to the recited function. *Med. Instrumentation and Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205,
 11 1211 (Fed. Cir. 2003). The corresponding structure is thus limited to the disclosure contained
 12 within the four corners of the asserted patents. It is not evaluated by whether Mr. Buscaino
 13 “view[s] the specifications of the ’847 and ’424 patents as limiting the controller or controller
 14 chip to require a computer or microprocessor.” (Buscaino Aug. 2, 2012 Decl., ¶ 20.) Expert
 15 testimony that speculates on structures that “can” perform the function is insufficient. *Med.*
 16 *Instrumentation*, 344 F.3d at 1211. That Mr. Buscaino must hypothesize about what controllers
 17 might work shows that the specification itself does not include sufficient disclosure.

18 The patents’ disclosure of ROM (read-only memory) associated with the controller is
 19 consistent with Defendants’ position that the controller must be programmed by an algorithm.
 20 Although the discussion of a controller in the asserted patents’ specification is scant, the
 21 specifications do disclose a “controller chip and *an associated memory device (e.g., ROM).*” (Ex.
 22 2, ’443 patent, 7:40-42; Ex. 5, ’424 patent, 7:54-55; Ex. 6, ’847 patent, 7:36-39.) (Emphasis
 23 added.) ROMs typically store program instructions that a controller will execute to perform its
 24 operations. (See Tjaden Decl., ¶ 20.) Thus, contrary to Mr. Buscaino’s assertion, the patents’
 25 controller is not a “computer-less, microprocessor-less integrated circuit or chip.” (*Id.*)

26 Significantly, Mr. Buscaino’s own previous testimony in the ITC is inconsistent with his
 27 testimony here that the corresponding structure could be any controller without a programmed
 28

1 algorithm. In Investigation No. 337-TA-807, in which TPL asserted the same patents at issue
 2 here, Mr. Buscaino submitted a declaration in support of TPL's opposition to respondent Sony's
 3 motion for summary determination of invalidity. Sony asserted that "controller 231" described as
 4 admitted prior art in the '443 patent (Ex. 2, '443 patent, 2:20-22) constitutes the "controller"
 5 claimed in that patent as performing mapping. In denying Sony's motion, Administrative Law
 6 Judge Rogers relied upon the following sworn statement from Mr. Buscaino:

7
 8 I understand that Sony cites to column 2, lines 20-22 to argue that
 9 the '443 patent discloses mapping with respect to the prior art. In
 10 my opinion the disclosure that the prior art controller performs
 11 "handshaking and data transfer" does not describe mapping as
 12 claimed. It does not discuss assigning a group of contact pins to
 13 power, ground, or data signal lines based on the type of memory
 14 card asserted, pursuant to TPL's proposed construction or
 15 selectively connecting a subset of contact pins to different sets of
 16 signal or power lines, based on the type of memory card identified
 17 by the controller chip, under Respondents' proposed claim
 18 construction. Handshaking and data transfer relates to any card
 19 reader, including card readers that accept only one type of memory
 20 card.

21 (Ex. 7, Order No. 44, Inv. No. 337-TA-807 at 7, quoting Buscaino Decl., ¶ 15.) Mr. Buscaino
 22 thus admitted that not any controller can perform the claimed "mapping," because disclosing a
 23 controller in isolation does not describe how to perform mapping. Thus, Mr. Buscaino previously
 24 acknowledged that the structure required to perform the "means for mapping" must be more than
 25 just any controller; it must be a controller programmed according to an algorithm to perform the
 26 claimed function of mapping.

27 **Finally**, Mr. Buscaino's assessment that the Patent adequately discloses an algorithm for
 28 use with the controller fares no better. The specification of the '424 and '847 patents does not
 disclose an algorithm. (See Tjaden Decl., ¶¶ 21-31.) Although Mr. Buscaino cites to a large
 expanse of the specification as purported disclosure of an algorithm, he does not demonstrate how
 that disclosure relates to the function as it was defined in the prosecution history. (Buscaino Aug.
 2, 2012 Decl., ¶ 22.) Nor could he, since he did not address or even consider the prosecution
 history. This is plainly deficient and does not provide any clear link between the alleged structure
 (here, an algorithm) and the claimed mapping function. *Med. Instrumentation*, 344 F.3d at 1211.

1 Furthermore, the “examples” cited by Mr. Buscaino from Figures 4 and 5 of the ’424 and ’847
2 patents (Buscaino Aug. 2, 2012 Decl., ¶¶ 24-25) do not demonstrate any teaching of an algorithm
3 but merely illustrate connections – prewired before any card is inserted – of signal lines between
4 multiple sets of contact pins and a discrete set of connector pins. (See Tjaden Decl., ¶¶ 23-25.)

5 Moreover, Mr. Buscaino’s failure to consider the ’443 patent’s prosecution history results
6 in his improper reliance on Figure 5 of the ’638 patent. (Buscaino Decl., ¶ 26.) The ’638 patent
7 issued several years before the prosecution of the ’443 patent (and thus well before the “mapping”
8 amendment and the Applicant’s statements regarding the Hung-Ju Reference). The ’638 patent
9 discloses separate prewired adapter devices and expressly teaches away from the use of a
10 controller “to map” as claimed in the ’424, ’443, and ’847 patents. Figure 5 of the ’638 patent
11 illustrates pin tables where contact pins for different cards (CF, SmartMedia, MMC/SD, and
12 Memory Stick) are connected by separate adapter devices to a common connector pin structure
13 having 50 pins. (See Tjaden Decl., ¶ 26.) This disclosure has no relevance here. The ’638 patent
14 discloses several single-format adapters, but the ’424 and ’847 patents relate to a single multi-
15 format adapter. Figure 5 of the ’638 patent neither corresponds to the claimed “mapping”
16 function, as defined in the ’443 prosecution history, nor discloses an algorithm for performing
17 that function. (*Id.*)

18 In any event, TPL cannot rely on Mr. Buscaino’s attempts to add additional information
19 into the specification as purported disclosure of an algorithm (*e.g.*, Buscaino Decl., ¶ 26) because
20 a patentee “cannot rely on the knowledge of one skilled in the art to fill in the gaps” for
21 corresponding structure. *Function Media, L.L.C. v. Google Inc.*, 708 F.3d 1310, 1317-19 (Fed.
22 Cir. 2013). Here, the plain language of the patents does not disclose an algorithm for performing
23 the mapping function. As a result, the “means for mapping” terms – and the claims reciting those
24 terms – are invalid as indefinite under § 112, ¶ 2.

3. “Means for identifying [determining] the type of memory card inserted into said port” (’424 patent, claims 25, 28; ’847 patent, claim 2)

Defendants’ Proposed Construction	Plaintiffs’ Proposed Construction
<p>This term is governed by 35 U.S.C. § 112, ¶ 6. Function: “identifying the type of memory card inserted into said port.” Structure: “a controller and card detect lines for the various cards, wherein the card detect lines for at least one type of memory card is multiplexed with data bus lines for at least one other type of card”</p>	<p>This term is governed by 35 U.S.C. § 112, ¶ 6. Function: “identifying the type of memory card inserted into said port.” Structure: “a controller”</p>

The parties agree on the recited function, but disagree on the corresponding structure.⁶ Defendants’ proposal reflects the structure identified in the patents’ specifications as is required for a means-plus-function limitation. Plaintiffs’ proposal, however, seeks to broaden the scope of the claims by avoiding corresponding structure identified in the specification that is necessary to perform the recited function. Here, unlike the specifications’ discussion of the “means for mapping” limitations, the patents disclose additional structure beyond the use of a controller to identify cards. By statute, this structure limits the scope of the claims and must be included in a proper construction of the “means for identifying” and “means for determining” elements. 35 U.S.C. § 112, ¶ 6.

Identification of structure corresponding to a means element “must include all structure that actually performs the recited function.” *Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1376 (Fed. Cir. 2010) (citations omitted). The only discussion in the ’424 and ’847 patents that clearly links structure to the function of “identifying” the card type accompanies the description of Figure 5, which identifies two alternative card detect structures:

FIG. 5 is a table of pin mappings for the xD, standard MMC/SD, standard Memory Stick, SmartMedia, miniSD, RSMMC, and MS Duo ...

For such an embodiment, pin 1 is a ground pin and pin 18 is a power pin for each connector. The data lines for the SmartMedia and xD interface cards have a parallel data bus of 8 bits denoted as D0-D7 that occupy pins 10-17. These data bus lines are multiplexed to serve as card-detect lines for the remaining media types. As described in application Ser. No. 09/610,904 (now U.S. Pat.

⁶ The parties also disagree on construction of the phrase “type of card,” which is briefed separately herein (Section 7, p. 31).

No. 6,438,638), the signal lines to the controller are normally pulled high. When a card is inserted, the card pulls its connected pins low. Detection of card type is determined [1] by detection of which of the mapped card detect lines is pulled low as illustrated in FIG. 5, or [2] by the (binary) state of data or other card pins mapped to a common set of controller pins as described in the aforesaid parent application. See, e.g., FIGS. 4A-E thereof.

(Ex. 5, '424 patent, 6:32-49 (emphasis added).) These two alternatives are discussed below.

a. Card identification using a controller and card detect lines as shown in Figures 4 and 5 of the asserted patents.

For the first alternative, the specification states that “[t]he data bus lines [for SmartMedia and xD cards] are multiplexed to serve as card-detect lines for the remaining media types.” (Ex. 5, '424 patent, 6:37-41.) This multiplexing arrangement with SmartMedia and xD cards is shown in Figure 5’s “table of pin mappings.” (*Id.* at 6:32.) The patent contains a second “pin mapping” table in Figure 4 that shows data bus lines for the SmartMedia card multiplexed to serve as card detect lines for the remaining media cards. The different contact pins for the parallel data bus lines for the different types of cards are denoted D0-D7 in Figures 4 and 5, and the contact pins for the card detect lines are denoted by “CD” in Figure 4 and “CD1-CD7” in Figure 5. The multiplexing arrangements in Figures 4 and 5 are shown below with multiplexed card detect pins shown in yellow and multiplexed data lines shown in blue. In each case, the card detect lines for at least one type of memory card is multiplexed with data bus lines for at least one other type of card.

PIN	SMART MEDIA	MMC/SD	MEMORY STICK
1	D0/WPSW		
2	D1	-WP	
3	D2	-CD	
4	D3	MCMD	
5	D4		-CD
6	D5		BS
7	D6		SDIO
8	D7		
9	LVD		
10	-WE	D0	
11	-RE	D1	
12	-ALE	D2	
13	-CLE	D3	
14	READY		
15	-CE		
16	-WP		
17	-WPSW		
18	GROUND	GROUND	GROUND
19	POWER	POWER	POWER
20		CLK	MCLK
21			

'424 Patent, FIG. 4. (annotated)

PIN	XD	MMC/SD (REGULAR SIZE)	MEMORY STICK (REGULAR SIZE)	SMART MEDIA	MINISD	RS MMC	MEMORY STICK DUO
1	GROUND	GROUND	GROUND	GROUND	GROUND	GROUND	GROUND
2	-CD1						
3	RDY	MCMD	BS	RDY	MCMD	MCMD	BS
4	-RE	SD0	SDIO (MSD0)	-RE	SDD0	SDD0	SDIO (MSD0)
5	-CS	SD1	MSD1	-CS	SDD1	SDD1	MSD1
6	CLE	SD2	MSD2	CLE	SDD2	SDD2	MSD2
7	ALE	SD3	MSD3	ALE	SDD3	SDD3	MSD3
8	-WE	CLK	CLK	-WE	CLK	CLK	CLK
9	WP	-WP		WP			
10	D0	-CD2		D0			
11	D1		-CD3	D1			
12	D2			D2/CD4			
13	D3			D3	-CD5		
14	D4			D4		-CD6	
15	D5			D5			-CD7
16	D6			D6/WPSW			
17	D7			D7/LVD			
18	POWER	POWER	POWER	POWER	POWER	POWER	POWER

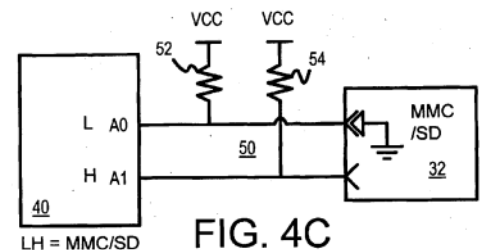
'424 Patent, FIG. 5 (annotated)

The patent describes a controller 231 that communicates with memory cards inserted into a port via signal lines connected to different sets of contact pins corresponding to each type of memory card, as shown in Figures 3-5. When a card is inserted into the port, its insertion causes

the multiplexed card detect line for that type of card to be pulled to a low voltage, and the controller determines which type of card has been inserted “by detection of which of the mapped card detect lines is pulled low.” (Ex. 5, ’424 patent, 6:43-46.) For example, when the controller receives a low voltage signal on pin 11 of the Figure 5 embodiment, the controller recognizes the inserted card as a Memory Stick (Regular Size) card. Thus, the card detect lines form an integral structure for the “identifying” function.

b. The card detect structure associated with Figures 4A-E of the ’638 patent includes passive adapters, which are incompatible with the universal adapter designs of the ’424 and ’847 patents.

The second card detect structure is associated with Figures 4A-E of the ’638 patent, and includes a controller chip 40 that receives inputs from address lines A0 and A1. (Ex. 8, ’638 patent, 6:19-26, Figures 4A-E.) The address lines A0 and A1 are connected to a CompactFlash connector 44 and a high voltage source VCC through resistors 52 and 54. (*Id.* at 6:27-34, Figures 4A-E.) The card detect structure additionally includes the use of detachable, passive adapters 30, 32, and 33, shown in Figures 4C, 4D, and 4E, respectively. According to the ’638 patent’s specification, controller chip 40 reads card-select pins CDO, CD1 to detect the presence of a card in the connector. (*Id.* at 6:43-44.) When a card is detected, controller chip 40 then reads the states (H for high and L for low) of the binary signals on



address lines A0 and A1 to determine the type of card inserted. (*Id.* at 6:45-7:46.) The passive adapters 30, 32 and 34 play critical roles in the card detection scheme described in the ’638 patent. For example, in the case of SmartMedia, the patent states that passive “adapter 30 internally connects pin A1 from the CompactFlash interface to the ground pin on the CompactFlash Interface.” Without the passive adapters, the controller shown in Figures 4A-E could not detect the type of a card inserted.

Defendants did not include this second alternative structure in their proposal because the ’638 patent describes an adapter configuration that is incompatible with the asserted claims.

1 The asserted claims refer to an adapter in which “a plurality of different types of memory media
 2 cards [are] inserted into [a] port.” (Ex. 5, ‘424 patent, cl. 25.) The ‘638 patent, by contrast,
 3 describes different types of cards being used with different adapters, not a common adapter. (Ex.
 4 8, ‘638 patent, Figure 3B (an MMC/SD adapter 32 for a MMC/SD card 28, a separate
 5 SmartMedia adapter 30 for a SmartMedia card 24, etc.)) Thus, although the ‘638 patent has been
 6 incorporated by reference into the ‘424 and ‘847 patents, it does not describe structure that finds
 7 application in the multi-format adapter designs claimed by the ‘424 and ‘847 patents. If the Court
 8 disagrees, then Defendants propose that the definition of structure be supplemented to include “a
 9 pair of address lines [e.g., A0 and A1] that are pulled high or low by passive adapters to define
 10 patterns that identify a type of card.”

11 **c. Plaintiffs’ arguments are flawed.**

12 Plaintiffs’ proposal that the structure be limited only to the disclosed “controller” is wrong
 13 as a matter of law and ignores the structure actually disclosed in the specification that performs
 14 the “identifying” function. A controller alone is not sufficient structure to perform the claimed
 15 “identifying” function. *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 519 (Fed. Cir. 2012).

16 Plaintiffs’ first argument – that card detect lines are not required to perform the
 17 identifying function because the patents also reference an alternative structure described in
 18 the ‘638 patent that does not use card detect lines (Pltfs.’ Op. Br. at 17-18) – misses the point. As
 19 explained above, the ‘424 and ‘847 patents disclose two alternative structures for card
 20 identification. The first requires card detect lines to perform card identification, and they must be
 21 included as one of the structures for the means for identifying, even if the patents disclose other
 22 structures.

23 Plaintiffs’ next argument – that card detect lines should be excluded because they do not
 24 actually perform the “identifying” function (Pltfs.’ Op. Br. at 18) – contradicts the patents’
 25 disclosure. The patent is unequivocal: “Detection of card type is determined by detection of
 26 which of the mapped card detect lines is pulled low as illustrated in Figure 5.” (Ex. 5, ‘424 patent,
 27 6:44-46.) Without card detect lines, the controller would not be able to detect the type of card
 28

that is inserted into the port. Thus, both the controller and card detect lines are necessary to perform the recited function, and must be included in the corresponding structure. *Telcordia*. 612 F.3d at 1376 (“corresponding structure...***must include all structure*** that actually performs the recited function”) (emphasis added).

Plaintiffs’ final argument – that the card detect lines need not be multiplexed with signal lines to perform the identifying function (Pltfs.’ Op. Br. at 19) – contradicts the specification. Again, the patent states the “data bus lines ***are*** multiplexed to serve as card-detect lines for the remaining media types.” (Ex. 5, ’424 patent, 6:39-41 (emphasis added).) Multiplexing is not optional, it is required. The two “pin mapping” tables in the patents also both show the multiplexing of data bus lines signals to serve as card detect lines (as illustrated in the annotated Figures 4 and 5 above).⁷ And, as discussed, the patent describes that multiplexing of pins achieves the goal of providing a connector with a small number of pins. (Ex. 5, ’424 patent, 6:32-35, 6:58-63 (discussing Figure 5).) Although Plaintiffs complain that Defendants’ proposed construction forecloses use of other means to identify card type, this is the *quid pro quo* for ***their choice*** to invoke § 112, ¶ 6. By statute, the corresponding structure is limited to the specific structure actually described in the specification.

4. “Contact pins integrated within [the] molded plastic” (’443 patent, claims 1, 9)⁸

Defendants’ Proposed Construction	Plaintiffs’ Proposed Construction
Contact pins “are embedded within molded plastic.” Contact pins do not correspond to	Plain and ordinary meaning; no construction necessary.

⁷ Plaintiffs assert that the patent’s disclosure “is clear that the invention may be utilized with memory cards of any type where no multiplexing is required,” (Pltfs.’ Op. Br. at 10), but the passage Plaintiffs cite does not say multiplexing is not required, nor does it describe or show an embodiment that does not use multiplexing. It merely says, “In general, embodiments of the invention are applicable to any generic flash media.” (*Id.* at 19 n.35.) That statement in no way alters the proper analysis of structure under § 112, ¶ 6.

⁸ Defendants are not seeking a separate construction of the term “controller integrated into the multi-memory media adapter” (’443 patent, claim 9), but submit that the term “integrated” should be interpreted consistently as “embedded” across all asserted claims. Defendants are also not seeking construction of the term contact pins “mounted on said surface at locations adapted to interface with the electrical contacts of a corresponding one of a plurality of different types of memory media cards when inserted into said port” (’424 patent, claims 25 and 28, ’847 patent, claim 1).

floating contact pins.

The plain language of claims 1 and 9 of the '443 patent requires contact pins that are “integrated *within*” molded plastic. Thus, the claimed contact pins cannot simply sit on the surface of the molded plastic, they must be embedded into the plastic itself. Defendants’ construction captures this requirement.

The specification teaches away from floating contact pins found in the prior art, and the prosecution history contains an express disclaimer that confirms the exclusion of floating pins from the alleged invention. Defendants’ construction takes these express statements into account, while Plaintiffs’ failure to propose a construction improperly ignores this intrinsic evidence. Accordingly, the Court should adopt Defendants’ construction of “integrated” as “embedded” as the ALJ did in the ITC, and should further construe this limitation to exclude floating contact pins.

a. The specification teaches away from “floating” pins.

The specification makes it clear that the contact pins in the '443 patent are both different from and an alleged improvement over the “floating” contact pins of the prior art. The specification explains that by “integrating” or “embedding” the contact pins in the plastic of the adapter, the alleged invention is an improvement over such prior art pins. The “floating” contact pins of the prior art are shown as items 214, 215, 224, and 225 in Figure 2 of the '443 patent.

The specification expressly disparages the “floating” contact pins depicted in Figure 2:

The floating contact pins are subject to damage and deterioration. The various flash media cards have different thickness, and even the same flash media may have different thickness if produced by different manufacturers. The flash media cards exert pressure upon the floating contact pins, which eventually causes their resiliency to be reduced. When subsequently, a thinner flash media card is inserted into the flash media adapter, the corresponding contact pins may not make connection with the flash media card. Additionally if a flash media card is inserted incorrectly (e.g., upside down), removal of the flash media card may damage the contact pins.

(Ex. 2, '443 patent, 2:66-3:10 (emphasis added).)

The specification further states that it is an intended advantage of the alleged invention “to provide an adapter card with contact pins that retain their resiliency *to a greater degree than*

1 *floating contact pins*” and “*that are less likely to be damaged upon removal of a memory card.*”
 2 (*Id.* at 4:23-30 (emphasis added).) The specification explains that the alleged invention
 3 overcomes the problems with the prior art floating pins because the contact pins are “formed from
 4 *injected contacts with protruding pins.* This provides a more robust contact pin than the floating
 5 contact pins of the prior art, thereby lessening the likelihood that the resiliency of the contact pin
 6 will be reduced....” (*Id.* at 5:26-30 (emphasis added).) Additionally, the specification states that
 7 “by *embedding* the contacts in a plastic injection, such problems as metal fatigue, travel, etc., can
 8 be controlled much better....” (*Id.* at 7:67-8:2 (emphasis added).) Moreover, Figure 3 confirms
 9 that the contact pins (315) of the alleged invention are embedded within the molded plastic of the
 10 adapter, especially when compared with the prior art “floating” pins of Figure 2.

11 Defendants’ construction properly gives full weight and effect to the statements in the
 12 specification because it requires the contact pins to be embedded within the plastic of the adapter,
 13 and it excludes the “floating” pins of the prior art.

14 **b. The Applicant expressly disclaimed “floating” pins during the prosecution of**
 15 **the ’443 patent.**

16 Not only does the specification expressly teach away from the “floating” contact pins of
 17 the prior art, but the Applicant also expressly disclaimed such pins during prosecution. On
 18 November 2, 2006, the Examiner issued an Office Action rejecting all pending claims as
 19 anticipated by Hung-Ju. The Examiner maintained that Hung-Ju disclosed contact pins integrated
 20 within the molded plastic. (Ex. 3, ’443 patent excerpted file history at TPL002239.) Figure 5 of
 21 Hung-Ju depicts contact pins similar to those in Figure 2 of the ’443 patent. (*See* Ex. 1, Fig. 5.)

22 In response, the Applicant made clear that the invention did not include the prior art
 23 “floating” pins of Hung-Ju:

24 Applicant respectfully submits that Hung-Ju does not teach or
 25 suggest contact pins that are “integrated within the molded plastic”,
 26 as recited in Applicant’s independent claims 1 and 12. As can be
 27 seen from Figure 5 of Hung-Ju, the pins 104a and 104b *are of a*
 28 *floating structure sitting on an exterior or interior surface of the*
upper and lower frames 102 rather than being “integrated within”
the two planar elements, as recited in Applicants independent
claims 1 and 12.

(Ex. 3, '443 patent excerpted file history at TPL002556-TPL002557 (emphasis added, original emphasis omitted).) Thus, the Applicant expressly disclaimed from the meaning of “integrated within” any contact pins that “are of a floating structure sitting on an exterior or interior surface” of the housing like those disclosed in Hung-Ju. This constitutes a clear and unmistakable disavowal of claim scope. *See Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) (“[T]he prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.”).

Defendants’ construction properly accounts for the Applicant’s express prosecution history disclaimers by excluding “floating” pins that sit on exterior or interior surfaces of a housing from the meaning of the term “contact pins integrated within.”

c. Plaintiffs ignore the intrinsic evidence.

Despite the express disclaimers made both in the specification and during prosecution, Plaintiffs summarily dismiss the need to construe this term with the unsupported assertion that it is “readily comprehensible,” “does not need to be rewritten” and that there was no disclaimer.⁹ (Pltfs.’ Op. Br. at 22.) Contrary to Plaintiffs’ assertion, construction of this term is required to avoid the prior art distinguished during prosecution. *See Harris Corp. v. IXYS Corp.*, 114 F.3d 1149, 1154-55 (Fed. Cir. 1997) (rejecting a construction proposed by the plaintiff that would cause the claim to read on prior art that the plaintiff attempted to distinguish during prosecution). Moreover, during the ITC investigation, the ALJ agreed with Defendants that construction of this term was necessary, and that “floating” contact pins (i.e., pins that sit on surfaces) cannot meet this limitation. (Ex. 9, Order No. 23, Inv. No. 337-TA-841 at 24 (“...contact pins that are ‘embedded within’ molded plastic cannot extend to pins that sit on surfaces.”).) The Court should adopt Defendants’ construction because, unlike Plaintiffs’, it is consistent with the intrinsic evidence.

⁹ Plaintiffs have abandoned the alternative construction that they proposed in the ITC of “integrated within” as “at least partially enclosed by,” which was rightfully rejected by the ALJ as having no support in the claim language, specification or prosecution history. (Ex. 9, Order No. 23, Inv. No. 337-TA-841 at 23.) The plain language of the claim requires more than a partial enclosure of the contact pin in plastic.

5. **“Interconnection means” (’424 patent, claims 25, 28; ’847 patent, claim 1)**

Defendants’ Proposed Construction	Plaintiffs’ Proposed Construction
“Interconnection means”: Conductive structures separate and distinct from contact pins.	“Interconnection means”: Conductive elements that electrically connect.

The Court should adopt Defendants’ construction because it is supported by intrinsic evidence that requires the “interconnection means” to be a separate and distinct structure from the contact pins. Plaintiffs’ construction should be rejected because it is overly broad and ambiguous, and ignores the intrinsic evidence.

a. The claim language supports Defendants’ construction of “interconnection means.”

The claim language surrounding the term “interconnection means” in Claims 25 and 28 of the ’424 patent requires that the “interconnection means” be separate from the contact pins because signals must be mapped between the two. In particular, Claim 28 requires a “means for mapping power, ground or data signals *between* said interconnection means *and* said one or more contact pins.” (Ex. 5, ’424 patent, 12:8-10 (emphasis added).) A pin cannot be mapped to itself. Therefore, the interconnection means and the contact pins must be separate and distinct structures. Defendants’ construction captures this requirement. Contrary to Plaintiffs’ assertion, the phrase “separate and distinct” does not require “further claim construction.” (Pltfs.’ Op. Br. at 21.) Its meaning is simple: the same piece of metal cannot be both an interconnection means and a contact pin.

b. The specification supports Defendants’ construction.

The requirement that the interconnection means be separate from the contact pins is further supported by the specification, which describes “[i]nterconnects 312 that electrically connect the standard connector 340 to contact pins 315.” (Ex. 5, ’424 patent, 5:42-44, Ex. 6, ’847 patent, 5:29-30.) Thus, (1) the “interconnects,” (2) the “standard connector,” and (3) the “contact pins” are separate and distinct structures, as shown in Figure 3 of the patents.

c. **Plaintiffs’ construction of “interconnection means” is inconsistent with the intrinsic evidence.**

Plaintiffs ignore the requirement that the interconnection means be separate from contact pins by broadly construing interconnection means as “conductive elements that electrically connect.” The term “elements” is ambiguous and would require further construction. Moreover, Plaintiffs’ reliance on a piecemeal quotation from the prosecution history does not support their broad construction, and in fact reinforces the separate and distinct nature of the “interconnection means” and the contact pins. The Applicant stated that the claim “requires...a set of signal lines, the signal lines connected to an interconnection means, and the interconnection means connected to the contact pins.” (Ex. 10, ’847 patent excerpted file history at TPL010748.) If the interconnection means and the contact pins could be one and the same, no connection between them would be possible, and there could be no “mapping” between them as required by the claims.

The Court should adopt Defendants’ construction, as the ALJ did in the ITC. (Ex. 9, Order No. 23, Inv. No. 337-TA-841 at 20-21.)

6. **“Memory media card” (’443 pat., claims 1, 9; ’424 patent, claims 25, 28; ’847 patent, claim 1)**

Defendants’ Proposed Construction	Plaintiffs’ Proposed Construction
“a removable module capable of storing electronic data”	Plain and ordinary meaning; no construction necessary.

Defendants’ proposal of “memory media card” for construction is dictated by TPL’s arguments in post-hearing briefing at the ITC that the term “memory media card” should be construed narrowly to exclude a certain type of memory card called a SIM card:

SIM cards, or “Subscriber Identification Module” cards, are not memory media cards.... A SIM card stores phone numbers or messages.... The media memory [sic] cards claimed in the patents in suit, including SD and MMC cards, store any type of digital media, such as audio data and video data. Media memory [sic] cards claimed in the patents in suit are used in digital cameras, printers, GPS receivers, and other multi-media devices. . . . SIM cards are limited to mobile telephony devices.

(Ex. 11, TPL’s Post Hearing Reply Brief, Inv. No. 337-TA-841 at 71-72.) TPL’s argument before the ITC belies Plaintiffs’ contention, here, that it is sufficient to apply a plain meaning interpretation to the term. Instead, the construction of this term is disputed and it must be

1 construed.

2 While there is no generally accepted definition for “memory media card,” the intrinsic
3 evidence makes clear this term was intended to be generic, not specific. Neither the claims nor
4 the specification impose any limitations on what constitutes a memory media card beyond the fact
5 that it must be a card (i.e., removable module) that is capable of storing electronic data. (*See, e.g.*,
6 Ex. 2, ’443 patent, 4:13-15, 4:27-30, 5:31-34, 5:61, 5:66-6:3.) And while the specification
7 references exemplary card types (e.g., SmartMedia, SD/MMC, Memory Stick, etc.) the
8 specification plainly states that “[i]n general, embodiments of the invention are applicable to **any**
9 **generic flash media.**” (Ex. 2, ’443 patent, 8:19-24 (emphasis added).) Further, nothing in the
10 prosecution history suggests that the patentee disclaimed SIM cards (or any other types of
11 removable memory cards). Thus, the Defendants’ proposed construction of “a removable module
12 capable of storing electronic data” aligns with the intrinsic record.

13 Defendants’ proposed construction also aligns with the extrinsic evidence. (*See e.g.*, Ex.
14 12, U.S. Patent No. 5,675,628, 5:39-44 and Fig. 2 (referring to a SIM card as “a memory card or
15 memory module”); Ex. 13, U.S. Patent No. 5,748,720, 5:46-55, 6:1-6 and Fig. 2 (describing “an
16 electrically alterable memory location” in a SIM card and referring to a SIM card as a “memory
17 card or memory module”); Ex. 14, U.S. Patent No. 5,815,426, 4:23-53 and Fig. 2 (describing a
18 SIM card as a “low memory capacity card format”); Ex. 15, GSM 02.17 Standard, Section 6 at
19 10-11 (describing the “information storage requirements” of the memory in the SIM card).)

20 In contrast, Plaintiffs’ proposed construction is contradicted by the intrinsic record.
21 The ’638 patent, to which the asserted patents claim priority, expressly considers Smart Cards as
22 a type of memory media card:

23 *Different flash-card formats can be supported such as Smart*
24 *Cards*, and more or less than the four slots shown in the multi-card
25 flash reader can be included. Other adapters can be used for newer
26 flash formats for the single-slot CompactFlash reader. Any device
that needs Control Bus, Clock, Data Bus and Address Bus can be
designed to fit into this slot.

27 (Ex. 8, ’638 patent, 11:61-67 (emphases added).) Smart Cards are memory cards that typically
28 are used in financial and telephony applications. (Ex. 16, Klaus Vedder & Franz Weikmann,

1 *Smart Cards – Requirements, Properties, and Applications, in* STATE OF THE ART IN APPLIED
 2 CRYPTOGRAPHY 307-331, 308, 322 (1998).) And they include SIM cards. (*Id.* at 322 (“Access
 3 to all these [cellular] networks is controlled by smart cards, the so-called Subscriber Identity
 4 Modules (SIMS), in the form of ID-1 or Plug-in cards.”); *see also* Ex. 17, Urien, P., *Internet Card,*
 5 *a Smart Card as a True Internet Node, in* COMPUTER COMMUNICATIONS 23, 1655-66, 1656 (2000)
 6 (“Nowadays, smart cards are used as an electronic purse, in transport applications (contactless
 7 card [2]); in mobile phones (SIM card [3,4]); ...”) (brackets in original)).) The ’638 patent
 8 contains other references to memory cards in telephony devices as well. (Ex. 8, ’638 patent, 12:7-
 9 10) (“The invention can also apply to Personal Digital Assistants (PDAs) such as by Palm
 10 Computer or other handheld appliances, such as a Cell phone with USB capability.”). Thus, the
 11 asserted patents describe broad applications of memory media cards, including Smart Cards and
 12 SIM cards. The Court should adopt Defendants’ proposal and construe a “memory media card”
 13 as “a removable module capable of storing electronic data.”

14 **7. “Type of memory [media] card” (’443 patent, claims 1, 9; ’424 patent, claims 25, 28;**
 15 **’847 patent, claim 1¹⁰)**

Defendants’ Proposed Construction	Plaintiffs’ Proposed Construction
Different “types of memory media cards” have incompatible electrical and physical interfaces. For purposes of mapping/identifying in these claims, MMC/SD is a single type of memory media card.	Plain and ordinary meaning: no construction necessary.

20 The asserted claims use the “type of memory media card” phrase in the context of two
 21 functions: identifying the type of memory media card and mapping based on the identified type of
 22 memory media card. The parties’ principal dispute involves whether MMC and SD cards should
 23 be treated as a single “type of memory media card” for purposes recited in the claims (as
 24 Defendants contend) or, instead, as two different types of memory media cards. Even if these
 25 cards might be considered to be different in other contexts, here, the intrinsic evidence mandates

26
 27 ¹⁰ While Plaintiffs’ opening brief identifies only the claims of the ’424 and the ’847 patent,
 28 this term also appears in the identified claims of the ’443 patent asserted in this case. Therefore,
 construction of this term applies equally to the identified claims of the ’443 patent.

that MMC and SD cards be construed as a single type of memory media card for the recited purposes.

a. The specifications demonstrate that MMC and SD cards are identical for purposes of identification and pin mappings.

The specifications coin the term “MMC/SD” to refer to MMC and SD cards as a single type of card for pin mapping.¹¹ All discussion of pin mapping describes the MMC/SD card as a single type of card with a single set of signals. For example, Figure 4 is a table of “pin mappings” for three card formats – the SmartMedia card, the “MMC/SD” card, and the Memory Stick card – which are accommodated by a 21-pin connector. (Ex. 5, ’424 patent, 6:1-14.) For an “MMC/SD” card, the connector pins are prewired to a set of contact pins as illustrated in the “MMC/SD” column (*green*). For a Smart Media or Memory Stick card, the connector pins are prewired to different sets of contact pins as illustrated in the “Smart Media” column (*green*) or “Memory Stick” column (*orange*), respectively. (*Id.*)

PIN	SMART MEDIA	MMC/SD	MEMORY STICK
1	D0/WPSW		
2	D1	-WP	
3	D2	-CD	
4	D3	MCMD	
5	D4		-CD
6	D5		BS
7	D6		SDIO
8	D7		
9	LVD		
10	-WE	D0	
11	-RE	D1	
12	-ALE	D2	
13	-CLE	D3	
14	READY		
15	-CE		
16	-WP		
17	-WPSW		
18	GROUND	GROUND	GROUND
19	POWER	POWER	POWER
20		CLK	MCLK
21			

’443 Patent, FIG. 4 (annotated)

PIN	XD	MMC/SD (REGULAR SIZE)	MEMORY STICK (REGULAR SIZE)	SMART MEDIA	MINISD	RS MMC	MEMORY STICK DUO
1	GROUND	GROUND	GROUND	GROUND	GROUND	GROUND	GROUND
2	-CD1						
3	RDY	MCMD	BS	RDY	MCMD	MCMD	BS
4	-RE	SD0	SDIO (MSD0)	-RE	SDD0	SDD0	SDIO (MSD0)
5	-CS	SD1	MSD1	-CS	SDD1	SDD1	MSD1
6	CLE	SD2	MSD2	CLE	SDD2	SDD2	MSD2
7	ALE	SD3	MSD3	ALE	SDD3	SDD3	MSD3
8	-WE	CLK	CLK	-WE	CLK	CLK	CLK
9	WP	-WP		WP			
10	D0	-CD2		D0			
11	D1		-CD3	D1			
12	D2			D2/-CD4			
13	D3			D3	-CD5		
14	D4			D4		-CD6	
15	D5			D5			-CD7
16	D6			D6/-WPSW			
17	D7			D7/LVD			
18	POWER	POWER	POWER	POWER	POWER	POWER	POWER

’443 Patent, FIG. 5 (annotated)

Similarly, Figure 5 describes “a table of pin mappings for the xD, *standard MMC/SD*, standard Memory Stick, SmartMedia, miniSD, RSMMC, and MS Duo to an 18-pin connector in accordance with one embodiment of the present invention.” (*Id.* at 6:32-35 (emphasis added).) Here again, for an “MMC/SD” card, the connector pins are prewired to a set of contact pins as illustrated in the “MMC/SD” column of Figure 5 (*green*). The connector pins are prewired to different sets of contact pins for the other types of cards. These Figures and accompanying text

¹¹ (See Ex. 5, ’424 patent, 2:21-31 (Figure 2); 5:54-6:14 (Figure 4); 6:32-63 (Figure 5); 7:7-11 (Figure 6); 7:15-33 (Figure 7).) The patent describes MMC and SD as distinct from each other in only two places in the specification – cols. 2:2-6 and 7:27-31. These are discussed below.

1 treat MMC and SD cards as a single card type – “MMC/SD.” (*Id.* at 5:54-6:63.)¹²

2 The patents explain that commercially-available prior art adapters, shown in Figure 2 of
3 the patent, also read MMC and SD cards in a single card reader without the need for mapping.
4 (*Id.* at 2:21-31 (the prior art adapter has a single set of contact pins 214 for MMC/SD cards; a
5 controller chip 231 performs handshaking and data transfer with the cards).) The patents contain
6 no discussion to suggest that the adapter of Figure 3 interfaces with MMC and SD cards any
7 differently than the prior art adapter of Figure 2. MMC and SD cards are treated as a single type
8 of card for all claimed purposes in the patent.

9 The patents also describe MMC and SD cards as a single card type for purposes of the
10 identifying means recited in the claims. As discussed in Section 3 (p. 20), the patents disclose
11 two structures for identifying a type of card. The first structure includes a controller and card
12 detect pins multiplexed with data pins of another card format. (*Id.* at 6:39-46 (referencing pins
13 10-17 of Figure 5).) This structure treats MMC and SD cards as a single type of card because a
14 single card detect line (–CD2, pin 10) indicates the presence of an “MMC/SD” card. The second
15 structure includes a controller and address lines as in Figures 4A-E of the ‘638 patent. (*Id.* at
16 6:46-39.) Here, again, there is only one structure to identify an “MMC/SD” card. (*See Ex.*
17 8, ‘638 patent, Figure 4C.) The patents describe no *means for identifying* that treats MMC cards
18 as distinct from SD cards. Instead, the identification means treat these cards as a single card type,
19 “MMC/SD.”

20 Plaintiffs rely on two specification passages that describe MMC cards and SD cards as
21 distinct. The first is in the background discussion, and merely explains that MMC and SD cards
22 “have the same form factor but slightly different pin-out.” (Ex. 5, ‘424 patent, 2:3-4.) This
23 discussion, however, is directed to the prior art adapter, which, as explained above, reads MMC
24

25 ¹² The ITC recognized as much in its non-infringement holding:

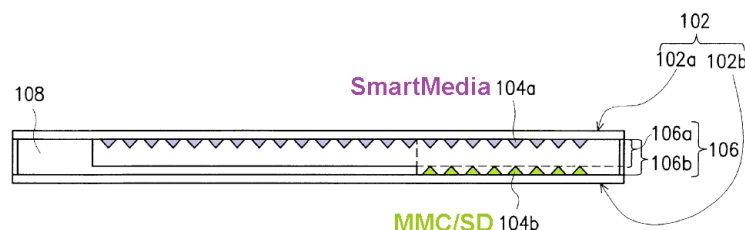
26 The patent explains that these two types of cards [MMC and SD] “have the same
27 form factor but slightly different pin out.” ‘443 patent col. 2 lines 1-2. The
28 similarities are such that every further reference of these two types of memory cards
in the asserted patents is conflated as “MMC/SD”, including in Figures 4 and 5. (Ex.
4, ITC Comm’n Op., Inv. No. 337-TA-841 at 18.)

1 and SD cards in a common adapter without the need for mapping. (*See id.* at Figure 2, 2:21-31.)
 2 Moreover, it sets context for use of the term “MMC/SD” throughout the remainder of the patents’
 3 discussion, which demonstrates these cards are essentially the same. It does not support a
 4 conclusion that MMC and SD cards should be considered different types of cards for the claims’
 5 mapping or identification features.

6 The second passage Plaintiffs reference is the discussion accompanying Figure 7. (*Id.* at
 7 7:27-31.) This passage does not describe any mapping or identification feature. The passage
 8 instead refers to different spatial locations that memory cards may be placed within an adapter.

9 **b. Prosecution History**

10 As noted above, during prosecution of the ’443 patent, the Patent Office concluded that
 11 the Hung-Ju Reference “discloses a system comprising a controller chip operable to differentiate
 12 a pin configuration based on an identified memory media card.” (Ex. 3, ’443 patent excerpted file
 13 history at TPL002554.) Like the admitted prior art of the patents’ Figure 2, the Hung-Ju
 14 Reference describes a memory card adapter (shown below) that reads MMC and SD cards via a
 15 single set of contact pins 104b (green). It reads SmartMedia cards via a second set of contact
 16 pins 104a (purple), and CompactFlash via a third set of contact pins 116 (not shown).



21 **Hung-Ju, FIG. 1 (annotated)**

22 Even though Hung-Ju’s adapter reads MMC and SD cards using a single set of contact
 23 pins 104b, the Applicant argued that the Hung-Ju Reference taught use of “different sets of
 24 contact pins for different types of memory cards.” It stated:

25 As shown, Hung-Ju discusses a memory card adaptor suitable for
 26 different types of memory cards by physically "positioning contact
 27 pins and entrance slots in various locations". ***Thus, Hung-Ju***
 28 ***suggests using different sets of contact pins for different types of***
memory cards. By physically placing memory cards in different
 positions in the adaptor, different contact pins are in contact with
 the memory cards.

1 (Ex. 3, '443 excerpted file history at TPL002554-TPL002555 (emphasis added, original
2 emphases omitted).) Either these statements to the Patent Office mischaracterize the disclosure of
3 the Hung-Ju Reference, or they are correct only under the Defendants' proposed claim
4 construction, under which MMC cards and SD cards are a single "type of memory card."
5 Plaintiffs' proposal conflicts with the arguments the Applicant made during prosecution.

6 Plaintiffs' brief does not acknowledge these prior statements, nor does it explain their
7 changed position. Instead, Plaintiffs refer to a statement made years later, during prosecution of
8 the '847 patent, that MMC and SD are different types of cards when no rejection was pending
9 (Pltfs.' Op. Br. at 21-22). This statement is insufficient to overcome the specifications' teachings
10 that MMC and SD cards are treated as a single card format for purposes of mapping and card
11 identification. Plaintiffs treated them as a single type of card during prosecution of the '443
12 patent to persuade the Patent Office to award them a patent. Plaintiffs, therefore, are estopped
13 from arguing otherwise. *See N. Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335,
14 1345 (Fed. Cir. 2005) (arguments made to overcome prior art during prosecution precluded
15 patentee from obtaining construction of term that would cover the feature distinguished in the
16 prior art).

17 IV. CONCLUSION

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19 For all of the foregoing reasons, Defendants respectfully request that their proposed
20 constructions for the disputed claim terms and phrases be adopted.
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing was served on all counsel of record for all parties of record on April 23, 2015 via the Court's CM/ECF system.

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